EAST FREMANTLE

YACHT CLUB

Environmental Management

Plan

Issue No. 7

July 2020

DOCUMENT CONTROL AND FURTHER REVISION

This Environmental Management Plan (EMP) is a confidential document for the use of East Fremantle Yacht Club (EFYC). It is not to be modified or amended without the written consent of the EFYC General Manager.

All revisions are to be implemented only under the authority of the EFYC General Manager, in accordance with the procedure of monitoring, checking and management review outlined in the review process in the EMP. All suggestions for revision are to be recorded on the Amendment Register for assessment by the EFYC General Manager for endorsement by the Executive Committee.

This EMP is a living document which is designed to constantly evolve in response to changing knowledge, regulations and conditions. Any printed versions are uncontrolled. Therefore, a current copy can be assessed and/or obtained from the EFYC website (www.efyc.com.au).

Amendment Register

Amendment No.	Suggested Date	Section/Page	Amended By
1	January 2009	Endorsement	
2	January 2009	Sect 1.Background	
3	January 2009	Table 15 Weekly KPI's	
4	January 2009	Add Appendix F Weekly Site Check List	
5.	January 2009	Section 9.2 Training	
6	January 2009	Add Appendix G Refueling Operation	
7.	July 2020	Page 3 Overview	M Brunswick

Endorsement

The East Fremantle Yacht Club is conscious of the fact that it occupies an important area of the Swan River Waterway.

The Club recognizes its responsibilities to the Environment under regulations arising typically from Development Approvals, Lease Agreements, the Swan and Canning Rivers Management Act 2006, the Swan and Canning Rivers Management Regulations 2007, The Environmental Protection Act 1986 and the Contaminated Sites Act 2003.

The East Fremantle Yacht Club also considers that itself as a corporate entity and all of its Members are Stakeholders in fostering a culture which will preserve the Environment and Bio Diversity of the Swan and Canning Rivers Waterways.

The subject Environmental Management Plan is the formal framework that the Club has developed to monitor facilities and raise awareness of the necessity to eliminate any actions which could pose a risk to our Environment.

Club Commodore _____date_____

General Manager _____date_____

Acknowledgment of responsibility

Responsibility	Responsible Person	Signature of Responsible Person	Date
Overall running and direction of the EMP	General Manager		
Allocation of money where necessary	Executive Committee		
Training programs	General Manager		

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1.0 Background

The East Fremantle Yacht Club is aware that eliminating actions that risk the integrity of the Environment can only be accomplished when all individuals who are involved with the Club in any capacity exercise “duty of care” with regard to the Environment.
The Club has provided and maintains Facilities, which when properly operating and Properly operated, pose no harm to the Environment.
.However, the Club recognizes that, it is incumbent on the Club to provide instruction and training, where required, to ensure that Individuals take ownership of their actions when using Club Equipment and Facilities.

- The Club has reviewed its site operations to indentify potential areas of failure in equipment and procedures and the consequences of the failures by conducting a basic Failure Modes and Effects Analysis. (FMEA).
- A weekly inspection of the Club Facilities has been instituted and a formal reporting sheet developed. (See Appendix F.)
- The Mooring and Storage Committee has taken ownership of a monthly jetty facilities report.
- Staff training is conducted both on a generic and specific needs basis and Environmental Issues are highlighted in Club Bulletins.

The objective of this EMP is to identify environmental issues pertaining specifically to the EFYC. The issues will be evaluated with regard to relevant legislation and performance indicators such as the ANZECC standards, STR guidelines, etc. The EMP will highlight contingency actions in order to allow the EFYC to continue to operate. The EMP will also facilitate the process of dealing with complaints and response to environmental incidents.

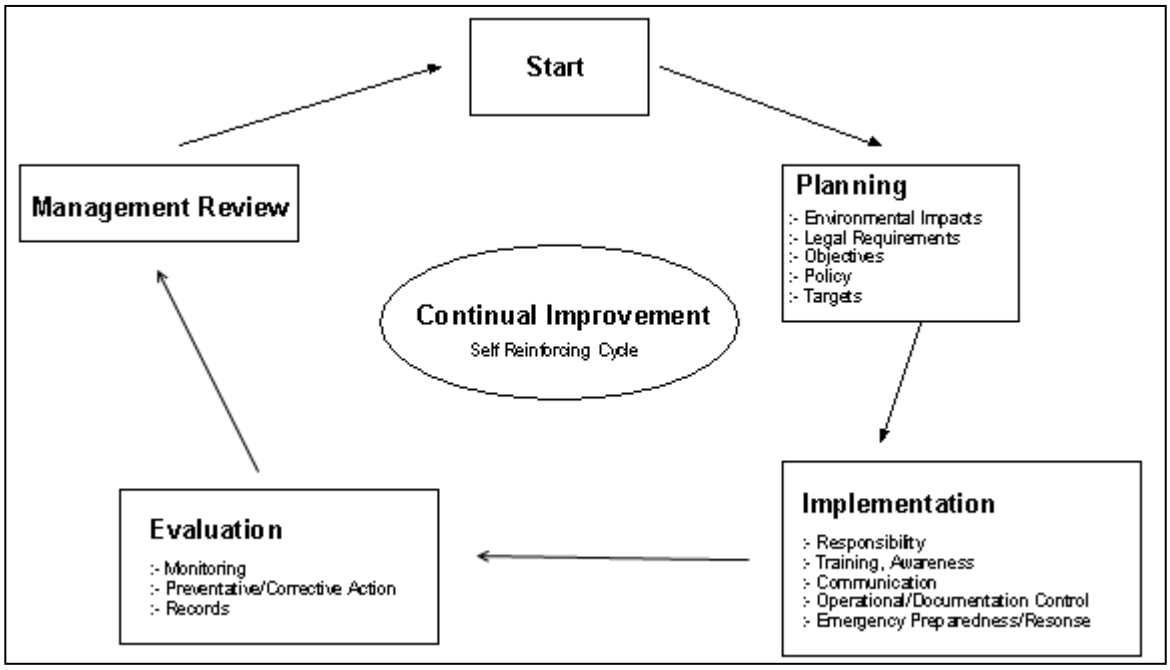

Figure 1: Continual Improvement Process

Overall pollution prevention and waste reduction goals are to be set by the Executive Committee; these are to be reviewed regularly and amended to achieve ongoing improvement in environmental management. This assists to create a self reinforcing cycle where the management process and strategies emplaced will be consistently refined and improved.

Considerable emphasis is to be placed on Environmental Education and training to attain Best Management Practice.

2.0 Overview

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Trading As: East Fremantle Yacht Club Inc

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2.1 Description of Premises

The East Fremantle Yacht Club is located on Petra Street, East Fremantle. The site is situated on the shore of the Swan River, across the river from Point Roe Park and approximately 1km upstream of the Aquarama Marina, (32°01'45.16"S; 115°46'31.59"E).

2.2 Ecological Values

A search of the Department of the Environment and Conservation, Water, Heritage and the Arts, Environmental Protection and Biodiversity Conservation Act (EPBC, 2008) was undertaken to ascertain local ecological values (refer Table 1).

Table 1: EPBC reporting tool results for the EFYC

Species Common Name	Species Scientific Name	Status	Comments
Baudin's Black-Cockatoo,	*Calyptorhynchus baudinii*	Vulnerable	Species or species habitat likely to occur within area
Carnaby's Black-Cockatoo	*Calyptorhynchus latirostris*	Endangered	Species or species habitat likely to occur within area
Red-tailed Phascogale	*Phascogale calura*	Endangered	Species or species habitat likely to occur within area
Quokka	*Setonix brachyurus*	Vulnerable	Species or species habitat may occur within area

Species Common Name	Species Scientific Name	Status	Comments
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Migratory	Species or species habitat likely to occur within area
Rainbow Bee-eater	*Merops ornatus*	Migratory	Species or species habitat may occur within area
Great Egret, White Egret	*Ardea alba*	Migratory	Species or species habitat may occur within area
Cattle Egret	*Ardea ibis*	Migratory	Species or species habitat may occur within area

There are no listed flora or vegetation communities at the EFYC (EPBC, 2008). Vegetation consists of grass lawn at the eastern aspect of the subject site. It seems therefore that the EFYC does not contain any ecological habitat of significance on site. Surrounding land uses are consistent with residential development, and as such, vegetation of any significance is contained with small pockets or highly degraded.

2.3 Hydrological / Geological Values

Groundwater levels are 4.5m below surface in an aquifer some 31 metres deep (Perth Groundwater Atlas, 2003). The salinity of ground water varies between 1,500 and 7,000 TDS in mg/L (brackish to saline). The surface geology type is indicated as 'Talama Limestone: predominantly calcarenite'. The area has a known risk of Acid Sulfate Soils. Contour maps show the ground slopes from 3.0m in the south to 0.4m in the north (Perth Ground Water Atlas, 2003).

2.4 Social Values

The area surrounding and including the EFYC is currently zoned under the MRS as Parks and recreation. A search of the Department of Indigenous Affairs Aboriginal Heritage Inquiry System indicated that the Swan River is listed as a registered site of Mythological significance (Aboriginal Heritage Inquiry System, 2008).

An aerial photograph of the Yacht Club's grounds is attached as appendix A.

2.5 Significant infrastructure

An aerial photograph detailing infrastructure at EFYC may be found in Appendix A.

2.5.1 Fuel Jetty/ Fuel Storage

Diesel and premium unleaded petrol is dispensed at the refueling jetty (refer Appendix B).

Diesel and petrol hydrocarbons are stored in underground tanks. Waste oil is collected and removed from site by a licensed contractor.

2.5.2 Marina

The marina is currently used for the mooring of diesel, petrol and sail-powered vessels in a fixed pen marina accommodating approximately 132 vessels in total.

2.5.3 Club House waste

Waste grease and cooking oils are collected in grease traps which are emptied by a contractor. Sewerage from the yacht club is collected at a small sewerage underneath the club house. This pump station pumps into the Water Corporation's local sewerage system.

2.5.4 Boat Maintenance

The marina has no hardstand maintenance or slipway facilities. EFYC has an agreement for hardstand/slipway works to be carried out at the South of Perth and Swan Yacht clubs.

In-pen vessel maintenance will be managed and controlled. Oil changes utilising the waste oil facility will be allowed, as will a 'soft' clean with a sponge to the underside of vessels. Spraying is not permitted within the land lease and/or the river reserve.

2.5.5 EFYC Facilities Summary

EFYC provides the following facilities:

- Diesel and ULP Refueling Jetty.
- Dry storage facilities.
- Pens for 132 vessels
- Swing Moorings for 25 vessels

3.0 Objectives

The aim is to focus on world best practice with performance criteria to integrate management practices to prevent or minimise environmental harm in line with the principles of ecologically sustainable development.

The objective of the EMP is to seek continual improvement by:

- Highlighting potential contamination issues.
- Initiating management and operational strategies for preventing and controlling pollution that may result from these issues.
- Implementing a system of ongoing audits to ensure the development and implementation of environmental management strategies in the future.

The key to achieving these objectives centers on waste control (prevention and minimisation), recycling, treatment and disposal.

4.0 Environmental Policy

The Executive Committee adopted and endorsed the following Environmental Policy (Current for this revision):

The East Fremantle Yacht Club (EFYC) is committed to:

- Minimise environmental harm and environmental degradation where practically possible.
- Operate all activities in compliance with any statutory requirements for protecting the environmental values of air, noise and water.
- Conduct the operation of its refueling jetty, marina and boat maintaining in a manner consistent with environmentally sustainable development.
- Comply with all relevant Workplace Health and Safety requirements.
- Minimise waste generation by using cleaner operational techniques and the reuse and recycling of wastes.
- Ensure activities are in the public interest.
- Continuous improvement.
- Provide adequate human and financial resources to effectively implement the EMP.
- Achieve best practice environmental management in design and implementation of the EMP**.**
- Ensure staff, members and contractors are suitably informed and trained to implement the EMP. This will be achieved through induction workshops, specialized training and information provided in the EFYC newsletter.
- Monitor and audit the performance of the Club's EMP.
- Strive to conform to the principles and objectives of Ecologically Sustainable Development. '

Signed:…… EFYC General Manager Date……

Signed:…… Commodore Date……

Signed:…… Environmental Officer Date……

5.0 Environmental Responsibility and Planning

5.1 Legal Responsibilities

The *Environmental Protection Act 1986* was introduced to improve environmental protection, clarify the administrative process and highlight responsibilities and therefore accountability for environmental protection.

EFYC intends to comply with the Act including its general environmental duty of care ensuring activity which causes, or is likely to cause environmental harm, is undertaken unless all reasonable and practical measures to prevent or minimise the harm have been implemented.

In addition to the EPA Act, the EFYC identifies its responsibilities under the following:

- Development approvals.
- Lease agreements.
- *Swan Canning Rivers Management Act 2006.*
- *Swan Canning Rivers Management Regulations 2007*
- *Contaminated Sites Act 2003.*

5.2 Due Diligence

Acting with due diligence is relatively straightforward and the implementation of a Due Diligence Program will assist in complying with all environmental legislation, reduce long-term costs and improve public image.

The seven primary principles of Due Diligence are:

1. Instruct all relevant officials that a Pollution Prevention System is required.
2. Establish (develop) a pollution prevention system.
3. Operate a pollution prevention system.
4. Ensure people with responsibility receive reports.
5. Ensure people with responsibility know environmental standards.
6. Ensure those with the responsibility know the environmental laws.

7. Ensure those with responsibility deal personally with system failures.

EFYC is of the view that Due Diligence should also include “Embracing the Continuous Improvement Process” (refer Figure 1).

6.0 Risk Assessment and Priority Setting

The Environmental Protection Act (1986) defines environmental value as:

- "A quality of physical characteristics of the environment that is conducive to ecological health or public amenity or safety".
- "A quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation".

6.1 Key Environmental Values:

The key environmental value for EFYC is water quality. This value is impacted upon by:

- Waste management.
- Sullage, sewerage, waste oil.
- Hydrocarbon spills, antifouling paints, chemicals, diesel, petrol.
- Air quality – dust and odor.
- Noise.
- Local / visual impact.

6.2 Risk Management

The following risk management and priority setting analysis was used to determine the action and implementation strategy/timing of environmental management measures outlined in sections 6, 7 and 8. This four step process is based on risk assessment methodologies on similar yacht clubs in the eastern states.

The main objectives of this risk assessment is to provide a simple, easy to use risk assessment prioritization system that can be utilized by club members and management. Environmental consequences and probabilities need to be identifiable as visual impacts of the potential risks.

The steps are as follows:

STEP ONE:

Assess the probability of each impact occurring, using the table below as a guide.

Probability

Level	Likelihood	Description
1	Rare	Very unlikely / may occur only in exceptional circumstances
2	Unlikely	Known to have occurred in the industry but not in the business
3	Probable	The event will probably occur, or has occurred under some conditions (e.g. yearly)
4	Likely	The event is expected to occur under some conditions or has occurred more than once at the site in recent years (e.g. weekly/monthly)
5	Almost certain	The event is a common or frequent occurrence or an ongoing impact (e.g. daily)

STEP TWO:

Assess the consequence of each impact on the environment, using the table below as a guide.

Level	Consequence	Description
1	Insignificant	Confined to immediate area, rapid clean-up, no environmental damage. Minor Injury to personnel resulting in no loses of work time.
2	Minimal	Confined to isolated area, rapid clean-up using internal resources, minimal environmental damage. Minor injuries to personnel resulting in loss of work time.
3	Moderate	Impact confined to the marina, clean-up may require external assistance, moderate environmental damage Injury causing significant lose work ability with lasting effects.
4	Major	Major environmental impact, extends beyond marina boundary, considerable clean-up using SRT and external resources. Injury which causes permanent inability to work with lasting long term effects.
5	Catastrophic	Severe environmental impact, extensive clean-up and recovery period, requires ongoing SRT and external resources. Death or permanent debilitating injury.

STEP THREE:

Determine the seriousness of each impact, using the table below as a guide.

Risk Assessment Rating

When determining risk control strategies, the hierarchy of risk controls, summarised below, must be considered:

- **Elimination:** Stop using the equipment or substance, or stop undertaking the procedure, causing the risk (e.g. clear traffic management plan);
- **Substitution:** Use an alternative substance, equipment or process which poses less risk (e.g. use water-based instead of solvent-based substances);
- **Isolation**: Separate receivers from the source of the risk (e.g. by using a welding tent in fire prone areas);
- **Engineering controls:** Reduce exposure to the risk by making physical changes to equipment, procedures or the work environment (e.g. using dust control measures on equipment); and
- **Change work practices:** Adopt work procedures which minimise exposure to the risk (e.g. wet sweeping a dusty environment rather than dry sweeping it, to minimise the amount of airborne dust).

		CONSEQUENCE				
		1	2	3	4	5
LIKELIHOOD		Insignificant	Minor	Moderate	Major	Catastrophic
5	Almost	5	10	15	20	25
4	Likely	4	8	12	16	20
3	Moderate	3	6	9	12	15
2	Unlikely	2	4	6	8	10
1	Rare	1	2	3	4	5

- Extreme risk; immediate action required
- High risk; senior management attention needed
- Moderate risk; management responsibility must be specified
- Low risk; manage by routine procedures

The assessment of potential impacts and likely environmental harm and adoption of appropriate Mitigation/Management measures ensure operations at the EFYC Marina protect environmental values.

Table 2: EFYC Risk Assessment

Risk Identification and Analysis			Inherent Risk Rating			Control Strategy	Residual Risk Rating			Plan	Further Information
Risk Issue (Source / Event)	**Potential Causes**	**Impacts**	**Likelihood**	**Consequence**	**Risk Rating**	**Control Measures**	**Likelihood**	**Consequence**	**Residual Risk Rating**	**Further Actions Required**	**Rating Comments**
Pollution in river from Bilge Water	Failure of existing bilge water disposal system. Vessel operator negligence	Water Pollution	2	2	4	EFYC to incorporate systems for appropriate handling and disposal of bilge water. EFYC is to assemble and provide a training package to members on appropriate handling and disposal methods. EFYC will also ensure: • Oil separation/absorption pillows in bilges of vessels with automatic bilge pumps • Make oil separation/absorption pillows readily available for purchase	2	2	4	Continual member education. Possible actions taken against offenders include fines and bans.	Refer section 8.1 of this document for further information.
Pollution from contaminated Stormwater Runoff	Contaminates accumulating on hardstand areas	Soil and or water contamination	2	2	4	Currently stormwater is conveyed as sheetflow across hardstand/car parking areas towards the river. Areas of high pollutant risk (e.g. oil containment areas) are bunded to retain runoff. Roof water is directly discharged to the base of the building where it either infiltrates in grassed areas or is conveyed as sheetflow to the river. The characteristics of the catchment areas makes it difficult to improve on the system, however EFYC has proposed to undertake investigation into the following: • Cost/benefit analysis of Undertaking Street sweeping on a regular basis to reduce pollutant load. • Harvesting of roof runoff for non-potable purposes. • Look at management measures for retaining and/or treating stormwater runoff from car parking areas (i.e. lined gutters installed along water's edge).	1	2	2	If failures of the system continue, a reevaluation of control measures will be required.	Refer section 8.1 of this document.
Chemical / Hazardous material spill / combustion	Container failure or rupture leading to spill or seepage - storage not contained.	Soil and or water contamination	2	3	6	Spill kits are located in easy-to-access locations (refer Appendix A). As part of the induction process, members and staff are to be trained in the appropriate management of spills, contact requirements, etc (refer Appendix D – incident response form). Ensure that MSDS information is readily available. Undertake audits annually to ensure compliance with standards and guidelines. Bowsers to meet the requirements as set out in section 8.2 of this document.	2	3	6	If failures of the system continue, a reevaluation of control measures will be required.	Refer section 8.3 of this document.
Hydrocarbon large spill / combustion	Refilling of storage tank by contractor	Soil and or water contamination	1	5	5	Spill kits are located in easy-to-access locations (refer Appendix A). As part of the induction process, members and staff are to be trained in the appropriate management of spills, contact requirements, etc (refer Appendix D – incident response form). Ensure that MSDS information is readily available. Undertake audits annually to ensure compliance with standards and guidelines. Bowsers to meet the requirements as set out in section 8.2 of this document.	1	5	5	If failures of the system continue, a reevaluation of control measures will be required.	Refer Section 8.2 of this document.
Hydrocarbon small spill	Loacalised refueling of equipment on site.	Soil and or water contamination	2	4	8	Spill kits are located in easy-to-access locations (refer Appendix A). As part of the induction process, members and staff are to be trained in the appropriate management of spills, contact requirements, etc (refer Appendix D – incident response form). Ensure that MSDS information is readily available. Undertake audits annually to ensure compliance with standards and guidelines.	1	4	4	Continual member education. Possible actions taken against offenders include fines and bans.	Refer Section 8.2 of this document.
Waste oil spillage during transport between vessel and tank	Transporting hydrocarbons in containers to vessels without appropriate seals.	Soil and or water contamination	2	4	8	Members and staff to be trained to understand the appropriate methods for removal and transport of waste oil – EFYC to include waste oil management within induction process. Waste oil to be retained within a bunded area after collection.	1	4	4	Continual member education. Possible actions taken against offenders include fines and bans.	Refer Section 8.3 of this document
Waste Oil Tank Failure	Container failure or rupture leading to spill or seepage - storage not contained.	Soil and or water contamination	1	5	5	The waste oil collection facility is state of the art, with a double lined tank in a bunded area to meet Australian standards.	1	5	5	None	Refer Section 8.3 of this document
Cleaning of vessels in wet pen areas (hard)	Anti fouling paints and other organics introduced directly in to the water	Water Pollution	2	3	6	Hard cleaning of vessels is not to be allowed within the wet pen areas. As part of the induction process, members are to be notified of the club policy in regards to cleaning of vessels in the wet pens. EFYC has made agreements with other yacht clubs for maintenance and hardstand works.	2	3	6	Continual member education. Possible actions taken against offenders include fines and bans.	Refer Section 8.4 of this document
Pollution from sewerage pit.	Rupture of sewerage storage system, failure of sewerage pump and back up systems	Soil and or water contamination	1	4	4	The system currently consists of 3 float switches, 2 pumps in rotation backing each other up. The system is alarmed to notify staff of failure.	1	4	4	EFYC to organize a call-out agreement with a sewer removal/management company in the case of all in-built safeguards fail.	Refer Section 8.1 of this document

Sullage pump out spillage	Failure to follow in place systems when moving sullage.	Soil and or water contamination	2	3	6	Members and staff to be trained to understand the appropriate methods for removal and transport of sullage – EFYC to include sullage pump out within induction process. Appropriate reporting of environmental incidents (refer Appendix D).	2	3	6	Continual member education. Possible actions taken against offenders include fines and bans.	Refer Section 8.1 of this document

7.0 Environmental Management System

7.1 Policy

Enjoyment of the environments of the Swan and Canning Rivers is fundamental to the existence of our club. As such EFYC endeavours to act in an environmentally responsible way so as to preserve the environment through:

- Compliance with relevant legislation
- Ensuring good environmental practice by our members, staff and contactors
- Reducing our environmental impacts upon the river and surrounding environment by continual improvement of our environmental management practices.

7.2 Procedure

This EMP has evolved during two phases.

1. A working Group identified generic environmental risks apparent at EFYC and considered different strategies for managing these risks.

2. Management subsequently considered these generic risks and strategies, assessing them for their completeness and relevance to EFYC.

From the 1st of August 2008, EFYC commits to implement the following selected strategies for each risk within the stated time frames:

LR legal requirement (Appendix C details the targets of the Swan-Canning cleanup program).
I already implemented.
6 to be implemented within 6 months.
12 to be implemented within 12 months.
24 to be implemented within 24 months.

Section 8 has broken down the environmental issues for EFYC and provides timeframes for implementation.

8.0 AREAS OF CONCERN

8.1 Liquid Waste

Any liquid waste reception facilities should consider the following:

- Type of liquid waste being received, any risks associated with storage combinations of liquid wastes, separated if necessary.
- Treatment and disposal methods.
- Transport access.
- Statutory approvals to store and operate.

Reception facilities for sewage need to take into consideration the following:

- Type of sewage, namely: septic sewage, sullage, galley waste, chemical toilet sewage, grey water, and sludge from anaerobic treatment systems.
- Frequency of use and necessary capacity.
- Constraints of the receiving sewage and treatment systems such as maximum delivery rates.
- Limitations of sewage transfer such as pumping capacity and pumping rates.
- Minimisation of odour release to the surrounding environment.
- Protection from accidental spillage during waste transfer.

Options for the reception of liquid waste at the marina include:

- Direct discharge of sewage/sullage to onsite storage tanks via the use of pumping systems for treatments or storage prior to discharge or removal by a private waste contractor. In addition this should include a centralized recycling station for waste oil.
- Discharge directly to the local sewage system.
- Direct removal by a waste disposal contractor from vessels.
- Collection of waste oil in a tank which is then removed by a waste disposal contractor.

A combination of these is likely to be required.

For non-sewage liquid waste typical treatment includes a settling tank or pit which may also act as a flow equalization tank, followed by an interceptor and a filter. Final waste discharge may be discharged to sewer or removed by site by a private waste contractor.

Risk			Table 3: Pollution of the river from bilge water	Time frame Options					
Objective			**No hydrocarbons discharged into river via bilge water**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**		Suitable bilge pillow waste disposal facilities provided						
	Equipment	√	Mandatory requirement for oil separation/absorption pillow in bilges of vessels with automatic bilge pumps			√			
		√	Absorption/separation pillow readily available (at recommended retailer or handler)		√				
	Practices	√	Provide training to members/staff/ contractors on impact, use and options for bilges pillows			√			
	Contingency plan	√	Non compliance of members/staff/ contractors results in disciplinary action		√				
	Reporting incidents	√	Non compliance of members/staff/ contractors to be reported to the club manager.			√			

Risk			Table 4: Pollution of the river from sewerage / sullage	Time frame Options					
Objective			**No waste water discharged into river**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**		Suitable system in place to handle waste water from vessels and Club house						
	Equipment	√	Sewerage pumped into local sewerage system, comprises 3 float switches with 2 pumps working in rotation. System is alarmed to notify of staff of failure.		√				
	Practices	√	Provide training to relevant staff on preferred procedures and BMP			√			
	Contingency plan	√	Non compliance of members/staff/ contractors results in disciplinary action		√				
	Reporting incidents	√	Non compliance of members/staff/ contractors to be reported to the club manager.			√			

Risk			Table 5: Pollution of the environment from contaminated stormwater runoff	Time frame Options					
Objective			**Containment and treatment of all contaminated runoff**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**		Clean water separation to minimise contamination and need for treatment of storm water runoff. EFYC propose to install rainwater tanks and a treatment system to reuse roof storm water for non-potable purposes. Non-structural controls, such as street sweeping, should be investigated for car parking areas.					√	
	Reporting incidents	√	All incidents reported to the club manager.					√	

8.2 Refuelling and Fuel Storage

The loss of hydrocarbons into the environment has the potential to cause considerable environmental damage. The presence of hydrocarbons in water is toxic to aquatic ecosystems whilst a film on the surface of water creates a visual concern. Relatively small amounts of hydrocarbons spread and cover/contaminate large areas.

Methods to limit Hydrocarbon in the environment include:

- Regular testing of refueling equipment to ensure it is working properly.
- Tanks are filled and maintained by appropriate qualified professionals.
- Have spill kits in place to contain accidental spillage.
- Educate and train members/staff:
    - In the proper use of refueling equipment.
    - In managing bilge water.
    - In best management practices for engine cleaning/maintenance.

Risk		Table 6: Hydrocarbon contamination from spillage during refuelling		Time frame Options					
Objective		**No spillage of hydrocarbons during refueling**		**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**	√	Bowsers fitted with variable rate delivery nozzles		√				
		√	Bowsers fitted with auto-shut off delivery nozzles		√				
		√	All vessel to have fuel/air separators inline devices that prevent fuel from escaping vents during refueling		√				
	Equipment	√	Provision of appropriate emergency response equipment (booms, mats etc) in close proximity to refueling facility.		√				
		√	Develop a member preferred procedures on refueling.		√				
		√	Provide training to members/clients/contractors on preferred procedures and emergency response plan				√		
	Contingency plan	√	Develop emergency response plan		√				
	Reporting incidents	√	All fuel spill incidents which can not be controlled and managed by EFYC to be reported to the relevant agencies	√	√				
		√	All spill incidents reported to the Club Manager		√				

Risk			Table 7: Hydrocarbon contamination from storage tanks and associated pipe works	Time frame Options					
Objective			**No loss of hydrocarbons to the environment from storage tanks and associated pipe works**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**	√	All fuel storage and associated pipe works to comply with relevant Department of Minerals and Energy and Department of Environmental Protection guidelines and regulations, Swan River Trust Policy and Standards Australia AS 1940-1993 for the storage and handling or flammable and combustible liquids.	√	√				
		√	All bunding and containment to be impervious		√				
		√	Minimise likelihood of tank and associated pipe works failure by ensuring tanks located as close as possible to point of delivery of fuel		√				
	Equipment	√	Provision of appropriate emergency response equipment (Booms, mats etc)		√				
	Practices	√	Develop a maintenance program for fuel tanks and associated pipe works (by the fuel company)		√				
		√	Provide training to relevant staff on preferred procedures and emergency response plan				√		
	Contingency plan	√	Develop an emergency response plan		√				
	Reporting incidents	√	All fuel spill incidents which can not be controlled and managed by EFYC to be reported to the relevant agencies	√	√				
		√	All spill incidents reported to the Club Manager		√				

8.3 Chemical Control

The storage, handling and disposal of chemicals are to be managed by the implementation of appropriate controls:

- Chemicals should be kept in a secure area and each container labeled clearly to make disposal and possible recycling easier.
- Maintain a register of chemicals with Material Safety Data Sheets (MSDS) for each chemical.
- Chemicals are to be stored, handled and disposed of in strict accordance with the specifications of manufacturers MSDS.
- Areas used for storage of liquid materials should be bunded to contain spills.
- Recycling of chemicals such as oils and solvents is to be enforced with remaining unwanted chemicals disposed of at an appropriately licensed facility.
- Non-regulated waste can be disposed of via normal waste collections.
- A spill plan is to be developed with appropriate spill response equipment to be maintained appropriately and stored in easily accessible locations.
- Appropriate legislative requirements in relation to the use and storage of chemicals should be adhered to in the design and operation of the marine area.

Risk			Table 8: Contamination of environment from stored hazardous and dangerous goods	Time frame Options					
Objective			**No loss of hazardous goods to the environment or unacceptable exposure of people resulting from the storage and use of hazardous and dangerous chemicals.**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**		All areas where hazardous and dangerous chemicals are stored and used to comply with current Department of Minerals and Energy and Department of Environmental Protection regulations and standards and guidelines where applicable.	√	√				
	Equipment	√	Provision of chemical spill station with absorbent clean-up material	√	√				
	Practices	√	Undertake inventory of all hazardous and dangerous chemicals on the premises, including those held by ground-people, contactors and sub-lessees. Ensure all Materials Safety Data Sheets (MSDS) for chemicals are available on site.	√		√			
		√	Conduct inspection to quantify the level of danger (hazard) presented by the flammable, combustible or environmental hazardous material.			√			

		√	Develop storage facilities and management practices incorporating the principles of separation from other facilities, people and property, segregation from other incompatible dangerous goods, secondary containment to intercept uncontrolled spills, security to prevent unauthorised entry and use of the materials, ventilation to prevent exposure to vapours and emergency response planning such that adequate fire fighting equipment, first aid treatment commensurate with the type of hazardous materials and appropriate emergency response contact numbers (Poisons Information, Medical, Fire and Emergency Services) are available.	√	√				
		√	Dangerous goods signage should be placed on gates for the fire department	√	√				
		√	Audit compliance with standards and guidelines annually				√		
	Contingency plan	√	Develop an emergency response plan		√				
		√	Develop training program for members/staff/contractors on emergency response plan			√			
	Reporting incidents	√	Club to provide appropriate first aid, first line fire fighting and emergency spill equipment	√	√				
		√	All spill incidents to be reported to the relevant agencies. Appropriate phone numbers must be displayed.	√	√				
		√	Report results of audit to Executive Committee of marine facility annually, and all incidents immediately following investigation. Reports should include findings, remedial actions necessary, costing, priority and timing or required works.				√		

8.4 Boat Maintenance

EFYC has no hardstand maintenance facilities. However, in-water vessel maintenance has the ability to cause severe environmental harm.

Risk			**Table 9: Contamination of environment due to cleaning of vessels in pen areas**	**Time frame Options**					
Objective			**Prevent contamination of river by cleaning agent**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**								
	Practices	√	No cleaning of vessels using cleaning agents in river			√			
		√	Develop a preferred procedures for cleaning (including preferred chemicals, safety and environmental issues)			√			
		√	Provide training to members/staff/ contractors on preferred procedures for cleaning.			√			
	Contingency plan	√	Non compliance of members/staff/ contractors results in disciplinary action		√				
		√	Use suitable facilities at another club		√				
	Reporting incidents	√	Non compliance of members/ contractors to be reported to managing body of marine facility		√				

8.5 Noise Control

Owing to the location of EFYC, noise is not considered a cause of concern. However, complaints have been received with regards to functions. Noise is also created from maintenance activities and the use of boats on the water and in the pens.

Risk			**Table 10: Noise pollution causing a nuisance and/or endangering the health of neighbours and members/clients/contractors**	**Time frame Options**					
Objective			**Reduce all noise pollution such that no health risk is posed and no complaints are received.**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	**Structures**								
	Practices	√	All noise generated by members/staff/clients/contractors to comply with Environmental Protection (noise) Regulations 1997.	√	√				
		√	Locate activities that are most likely to generate unwelcome noise as far as possible from neighbours.		√				
	Contingency plan	√	If noise complaints received, club to work with Local Government Environmental Health officer and complainant to negotiate acceptable levels and times for the activity to continue.		√				
	Reporting incidents	√	Non compliance of members/staff/ contractors to be reported to managing body of marine facility		√				

8.6 Site Maintenance

The site has limited unsealed surfaces. These surfaces, particular those near the launch should be maintained to limit adverse environmental effects. The area should be treated with 'best management' practises to help maintain the functionality.

Risk			**Table 11: contamination of river from fertiliser, herbicides, pesticides, green wastes and erosion.**	**Time frame Options**					
Objective			**Reduce opportunity for pollutants to run into the river from the grounds. Protect the river bank.**	**LR**	**I**	**6**	**12**	**24**	**D**
Strategy Options	Structures	√	Install litter traps in storm water drains					√	

9.0 Training and Education

9.1 EFYC Policy Statement

EFYC accepts that education of staff and members involved with the operations of EFYC Marina and club house and the Refueling Facility is critical in maintaining a safe, environmentally friendly and economically feasible facility that has a good 'public image'.

Relevant staff and members are to be trained in the purpose and operation of the EMP. Any employee, club member, guest, or any outside contractor violating the Environmental Guidelines, may be asked to pay for damages, and/or have his/her privileges terminated.

Notice to this effect is given to all individuals using EFYC facilities. All new Members are advised of this during induction and through publications.

9.2 Training and Education Topics

- Environmental Policy and Statement.
- Environmental awareness and responsibility (to be included in induction).
- Fuel Facility Operating Instructions for refueling Vessels. See Appendix G
- Awareness of a commitment to environmental management.
- Instruction on the Club's EMP.
- Briefing on environmental management objectives and targets and updating of these objectives and targets as the EMP is implemented and evolves.
- A general responsibility to encourage others to adopt environmentally friendly and best practices.
- Organisational structure and responsibilities and the role this plays in the effective management of environmental issues.
- The need for all staff and Members to be environmentally aware, provide feedback and suggest new ideas.
- Awareness of club rules.
- Awareness of the Swan River Trust Regulations.
- General awareness of environmental impacts and the pollution potential of products.

9.3 Communication

- Copies of EFYC Environmental Policy and Statement are displayed around the land lease and on the website to ensure continuing awareness and commitment to environmental responsibility.
- Signs indicating that swimming, diving and fishing is prohibited in the river lease area.
- Newsletters regarding relevant boating and environmental issues to members and to staff.

9.4 Personal Safety

Safety topics are to be include as part of the induction of staff and members with updates in bi-monthly newsletters:

- General safety procedures (use of Equipment).
- Location of first aid kits.
- Persons to contact with first aid training. (Contact lists, first aid training).
- Storage, handling and disposal of hazardous materials, their impacts and safe use (MSDS Material Safety Data Sheets).

9.5 Risk Minimisation

- Knowledge of control procedures for day-to-day operational activities to minimise environmental impacts.
- Locations of Electrical, Plumbing and Storage Tank arrangements to facilitate unnecessary accidental damage and rapid repairs.
- Correct usage of the Refueling Facility to minimise spillages.
- Correct techniques for containing and cleaning spills.

9.6 Reporting and Documentation

All staff is to be trained to respond to events that require action as per table 12 below.

Table 12: Event and action requirement for responsible persons

Event significance	Action required	Person responsible
Insignificant	Verbal report to general manager.	Staff member involved/witnessing the event.
Minor	Verbal report to general manager.	Staff member involved / witnessing the event.
Moderate	Written report to general manager.	Staff member involved / witnessing the event. Ultimately general manager is responsible to following up upon being made aware of situation.
Major	Written report to general manager and Swan River Trust.	Staff member involved / witnessing the event. Ultimately general manager is responsible to following up upon being made aware of situation.
Catastrophic	Written report to general manager and Swan River Trust.	Staff member involved / witnessing the event. Ultimately general manager is responsible to following up upon being made aware of situation.

Training and reporting documentation are to be prepared as per table 13 below.

Table 13: Reporting and documentation requirements

Document	Review	Person responsible
Induction documentation	Yearly	General Manager to QA, may delegate.
OHS Training documentation	Yearly or as necessary	General Manager to QA, may delegate.
Environmental safety Training	Yearly or as necessary	General Manager to QA, may delegate.
Yearly OHS incident report	Yearly	General Manager.
Yearly Environmental Incident report	Yearly	General Manager.

9.7 Emergencies

A control hierarchy has been established to facilitate an adaptable responsive approach to action during an emergency. Inducted members will have a key allowing access to emergency response equipment such as spill kits. Key staff personnel are to be trained to deal with emergency situations. Management is to be informed at all times of the status of the emergency and to control emergency response until professional emergency response personnel arrive on site if needed.

- Fire fighting Procedures and Roles.
- Emergency Procedures.
- Emergency Response Procedures – contingency plan for non-routine situations.
- Location of the Emergency Procedures Manual.
- Location of Storm Water Drains to manage sudden rainfall events or spillages.
- Location of current lists of emergency phone numbers.
- Location of details of Emergencies Response Procedures.

9.8 Training Performance Indicators and Timeframes

The following table outlines the preferred method for assessing the effectiveness of implemented educational programs. Further monitoring and measurement is provided as section 11 of this document.

Table 14: Training performance indicators and timeframes

Action	How	Timeframe	Person Responsible
Review effectiveness of personal safety education program.	Review accidents reports from the previous year.	Yearly	General Manager to delegate.
Review effectiveness of Environmental safety education program.	Correlate results from ongoing field monitoring and review spill/environmental damage reports from previous year.	Yearly	General Manager to delegate.

10.0 IMPLEMENTATION

The responsibility for implementing the adopted strategies of this environmental management plan in a timely fashion rests with the club manager under the direction of the executive committee.

Implementation of the above stated strategies will require the development of the following tools:

- Preferred procedures manual.
- Emergency response plan.
- Training program and reporting procedures.

The following tables outline the committed content of each.

Environmental Management Preferred Procedures Manual	**The preferred procedures manual of the East Fremantle Yacht Club will include the following topics**	
	YES	NO
Filling of bulk fuel tanks		√
Refuelling of vessels	√	
In Pen maintenance work to vessels (e.g., preferred maintenance methods and chemicals)	√	
Cleaning of vessels (including preferred chemicals, safety and environmental information)	√	

Emergency Response Plan	**The emergency response plan the East Fremantle Yacht Club will include the following topics**	
	YES	NO
Hydrocarbon contamination from storage tanks and associated pipework	√	
Spillage of hydrocarbon during refuelling	√	
Contamination of stored hazardous/dangerous goods.	√	

Environmental Management Reporting Protocol	The reporting protocol for the East Fremantle Yacht Club will consider how each of the following issues will be dealt with			
	Internal reporting		External reporting	
	YES	NO	YES	NO
Hydrocarbons from storage tanks and pipe work	√		√	
Hydrocarbons spilled during refuelling of vessels which can be controlled and cleaned up by Yacht Club.	√			
Hydrocarbons spilled during refuelling of vessels which cant be controlled and cleaned up by Yacht Club	√			
Non Compliance with use of bilge pillows	√		√	
Non compliance with vessel cleaning procedures	√			
Use of banned antifouling agents	√		√	
Non compliance with noise generation policy	√			
Contamination from stored hazardous/dangerous goods	√			

Environmental Management Training program	The training program for the East Fremantle Yacht Club will include the following topics					
	Members		Staff		Contractors	
	YES	NO	YES	NO	YES	NO
Preferred procedures for filling of bulk fuel tanks		√		√		√
Preferred procedures for refueling of vessels	√		√	√		√
Impact, use and options for bilge pillows	√			√	√	
Preferred procedures for vessel maintenance	√			√	√	
Preferred procedures for vessel cleaning	√			√	√	
Environmental consequences of antifouling	√		√		√	
Emergency response plan	√		√			
etc						

11.0 Monitoring and Measurement

Monitoring and measurement is an integral part of environmental management because it enables environmental performance to be measured against the objectives and targets described in the Environmental Management Program.

Monitoring is undertaken on an ongoing basis in order to assess the effectiveness of environmental management measures and as part of statutory compliance. Previous investigations, including a *Detailed Site Investigation* (Belleng, 2007) and the *Tributyltin and Heavy Metal Survey in the Swan River: Swan Yacht Club Sediment and Mussel Tissue Quality* (Oceanica, 2007), undertook water and sediment sampling from storm water outlets and beneath the slipway area. Based on these investigations, a detailed sampling and analysis plan (SAP) is to be undertaken for EFYC. At the time of writing this report, the SAP had yet to be undertaken, and as such, this section of the document was inconclusive. The SAP is proposed to provide a detailed, ongoing water and sediment sampling and target values (based on the Swan Canning Cleanup Program (SCCP) and ANZECC guidelines) that shall be incorporated into this document.

Table 15 outlines the key performance indicators are to be undertaken by EFYC.

Table 15: Key Performance Indicators

Performance Indicator	Frequency	Responsibility	Reference
Environmental Training	Biannual for new members and staff	EFYC General Manager / Environmental Officer	As part of the induction process.
Site Inspection	Weekly	EFYC General Manager	Site inspection sheet provided as Appendix F.
Environmental Incidents	As required	EFYC General Manager / Environmental Officer	Environmental Incident forms are provided as Appendix X.
Fuel Tanks	Water testing biannual	EFYC General Manager	Water testing results to be compared against ANXZECC guidelines to ensure performance objectives are met.
Fuel Tanks	Annual Pressure Testing	EFYC General Manager	Requirement of the installation of the fuel tanks.
Review of training programs/documentation	Annual	EFYC General Manager	Refer section 9
Review Environmental Management Plan documentation	Annual	EFYC General Manager / Environmental Officer	Refer section 11.2 In accordance with lease agreement

All results are to be collated and provided to the SRT on an annual basis.

These key performance indicators, as well as the target values, should be identified in consultation with the Swan River Trust.

11.1 Review and Improvement

Annual reviews by the Executive Committee will be used to assist the EFYC to address strategy options within the committed timeframe.

An annual review will be carried out by the Executive Committee. This review will consider the level of completion and success of selected strategy. The environmental risks posed will be reviewed and amended as necessary. Strategy options for managing these risks will be considered and committed to within an agreed timeframe.

11.2 EMP Revision

To successfully measure the progress of the EMP, a set of site/activity specific indicators needs to be developed. Indicators are most effective when they are measurable for comparative purposes.

Measurement of the progress of the EMP	
	Time frame
Regular internal audits to keep track of the progress of the Environmental Management Plan implementation.	Annual
Annual audit as per the draft lease agreement with the Swan River Trust	Annual
Number of reported incidents (etc spills and non compliance issues).	Ongoing
Percentage of members/staff/contractors who have participated in the Environmental Management Training Program.	Ongoing

Collection of measurements will be the responsibility of the Club Manager under the direction of the Executive Committee. EMP measurements will be presented to the Executive Committee annually.

11.3 Reporting of Accidents and Incidents

The Swan River Trust (SRT) requires that all personnel, operators and contractors report accidents and incidents to the SRT. This includes any incident that either harms the environment or has the

potential to harm the environment, including near misses (Refer Appendix D for Accident / Incident Reporting and Investigation).

The EFYC General Manager will retain a copy of all accident and incident forms and, based on the reporting and documenting procedures outlined in section 9.6 of this report, advise the appropriate agencies and personnel. A summation of all accident and incident forms will be provided to the Swan River Trust on an annual basis.

11.4 Complaints Procedure

The process of response to complaints is as follows:

- Report complaint to General Manager.
- Investigation by General Manager.
- General Manager will advise the Swan River Trust of complaint.
- EFYC will address incident/trigger with the EMP.
- Return findings to whoever made the complaint.

The above is to be recorded in a complaints register and managed by the General Manager.

11.5 Environmental Testing

EFYC is committed to carrying out environmental testing to assess the background levels of contaminants in the Swan River. The testing will be periodical in order to create a historical record of contaminants in the river. A proposed Sampling and Analysis Plan is included in Appendix E, which will be undertaken if and when it has been indorsed by the Swan River Trust.

12.0 SUMMATION

This EMP is designed to encourage a reduction in the environmental impact through minimizing the amount of waste and pollution generated within the EFYC lease area on the Swan River.

It includes a combination of source reduction or elimination, recycling, reclamation and waste stream reduction strategies.

Recycling is encouraged, containment practices are followed and dry disposal of waste is an integral part of the proposed daily operation.

The production of waste-water is minimized, and the quality of the water flowing from the existing sediment tanks monitored on a regular basis.

Using information from EFYC other similar activities, and commercial operators, EFYC, with guidance from VDM Environmental, will seek to continually modify this document to address the root cause of pollution and provide solutions to achieve continually improving goals for pollution prevention.

This EMP has been prepared to meet the requirements of the Swan River Trust and the Environmental Protection Act (EPA).

All staff, sub-contractors and members of EFYC are to implement the requirements of this Plan, whilst on the site.

Signed:……..	**EFYC General Manager**	**Date……**
Signed:……	**Commodore/Board Rep**	**Date……**
Signed:……	**Environmental Officer**	**Date……**

13.0 References

ANZECC, (1997). “Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand”.

Belleng VDM (2007), “East Fremantle Yacht Club: Detailed Site Investigation”

Belleng VDM (2007), “East Fremantle Yacht Club: Preliminary Site Investigation”

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Department of Indigenous Affairs. Aboriginal Heritage Sites – Policies and Procedures. www.dia.wa.gov.au/Heritage/heritage_policiesprocs.aspx

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